The Antique Radio Gazette

OFFICIAL PUBLICATION OF THE ANTIQUE RADIO CLUB OF AMERICA

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David Sarnoff

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The closing dates for receiving material of all kinds in order to have it appear in the next issue would be: February 15 — May 15
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The Antique Radio Club of America was incorporated in the State of Kentucky, in September, 1972. The first meeting was held at the Marriott Motor Inn, Washington, D.C., on September 23, 1972. At this meeting, by-laws were read and approved and directors selected. We feel that the inception of this Club is a giant step in bringing together those individuals whose chief interest lies in the area of early radio. We invite all collectors and historians of the subject to join the Club. A note to William E. Denk, Secretary, 81 Steeplechase Road, Devon, Pennsylvania 19333, will bring you an application blank by return mail.

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President's Page

This has to be written before the convention, but you will be reading it after the event. So, I can't comment on the convention in this issue. In the next issue, I'll give you a summary of actions at the Board of Directors meeting and the annual members meeting (if I am reelected!). I'm told that advance reservations are coming in in good quantity and that permits a forecast for a great convention. Thanks go to John Carpenter, Lloyd McIntyre and the tireless team of the West Virginia Chapter of ARCA, who have all been working hard to make the Louisville convention a pleasant event for everyone.

Jane and Bill Denk tell me that the dues increase to $12.00 has not affected registration. Although we lose a surprising number of members every year (usually members of only one year), each year the new joiners outnumber the drop-outs by greater and greater margins, so we continue to steadily grow every year in total membership. That's a healthy sign that the club is serving a useful purpose for the members, but that doesn't say that we can't do better. So, if you have ideas on how to improve member services, improve fellowship, or improve the hobby, the convention, or anything else on your mind, let any of the Board members know, or send me a letter. I promise that if your idea is a good one, you won't be asked to head the suggested activity!

I enjoyed Alan Douglas' well written letter to the editor in the Spring Gazette. Although I really don't beat my head against stone walls, I do try to save ARCA funds! Some people like "organization" in their club, some could care less. But let's let those who want to vote on Club matters do so—and let's respect those who aren't interested —but all I wanted to do was not to waste postage on those who don't care. Alan's comments about good fellowship and good swap meets is well taken. I'd like to see more and more of the local informal swap meets he describes. I sure find them a lot of fun. But someone always has to take the initiative to organize and advertise such an event. If any of you are interested in holding a local swap meet, contact one of the people mentioned in Alan's letter. I'll bet they will help you with ideas on how to get going.

JIM

The Radio Collector's Directory and Price Guide

Hot off the press, and as slick and attractive a package as any new car, is the new book for antique radio collectors by the team of ARCA member George Fathauer and Robert Grinder, K7AK. The book identifies in easy-to-read print over 8500 radio broadcast receivers, making it an invaluable tool for the novice and older collector, as well. The illustrations, both line and photograph are highly "readable."

The book is composed of three parts. The first deals with the background of radio in the US from 1921 to 1941, including the history and development of the receiver. The second half is an extensive directory and price guide. A fast survey of selling prices seemed to be more than fair. The third section deals with manufacturers' and trade names.

From the "washable" cover to the neat graphics, the book is a MUST for any collector, and a welcome, scholarly addition to the radio historian's bookshelf. (Ironwood Press, 321 pp. $15.95. Available from our Charleston WV Chapter bookstore.)

Jane Denk

W.H. Offenhauser, a Past President of the Radio Club of America, wrote the following article for the Club after Sarnoff's death. He gave us permission to print it in the August, 1974, edition of the GAZETTE. We thought it would be of interest to the members who have joined the club after that date. "Bill" Offenhauser is an Honorary Member of ARCA, and when we requested permission to reprint this piece, he said, "only if you preface it with the annotation that I wrote what I really knew and observed. History should be told as it was, not as we wished it to be."

— The Editor —

DAVID SARNOFF
by
William H. Offenhauser, Jr.

The flood of articles, lay and technical, that have already reported his words, thoughts, adventures and efforts would make an obituary at this late date superfluous. Yet, The Radio Club of America, older by a decade than "the other RCA," cannot ignore or even treat glibly the passing of one of its most prominent, most controversial and early Honorary Members. Knowing the man, you could never be undecided, "No Opinion" about The General. He may be disliked and even very heartily in some quarters but he cannot be ignored. Only history can pronounce the final judgment—whatever it will be.

Frederick M. Sammis, Chief Engineer of Marconi of America, hired DS first as an office boy. He was both diligent and ambitious; an early story indicates that he took letter filing very seriously. "I read every letter given to me for filing before I filed it.", said the young Sarnoff. "That way, within a month I knew more about the business than any other man in the company."

It was not an idle boast, but rather a keen commentary on an observable shortcoming in business acumen among many of his fellow employees.

Since many of the outstanding men of the time combined both the high speed "key and sounder" ability of a good telegrapher with a working knowledge of the apparatus of wireless, DS at first set his sights upon both; he studied at Pratt Institute in Brooklyn. Joe Stantley Sr., Treasurer-Emeritus of the Radio Club, has often remarked over the years that his classmate, DS, worked like a beaver, never missed a class, and was outstanding in his diligence. He was eager to learn everything that was to be learned. Stick-to-it-iveness was even then a characteristic of DS; it was not long before he became an astute student of people as well as of things and events.

Although wireless was glamorous and had its full share of genius-level minds such as Bob Marriott, Emil Simon, Haraden Pratt and A.N. Goldsmith, to mention just a very few, the pay of operators was neither glamorous nor reliable. DS had observed, with the help of E.J. Nally, that the attitude of people who controlled money is that business money income is productive and very desirable, while engineering is overhead, and those who make money disappear are undesirable. Obviously, the key to success is to "make money where it is coming in."

His enthusiasm for wireless engineering was badly mauled when Lee deForest, the acknowledged inventor of the Audion, was indicted for fraudulent stock selling practices in 1913. Since Bob Marriott was the spark plug behind the petition that was drafted by A.N. Goldsmith and Emil Simon to the Assistant District Attorney in deForest's behalf and signed by 49 IRE members, DS phoned Bob to ask him for lunch in 1914. After listening closely to Marriott's account, DS told his guest that he decided to give up wireless engineering. He did not think that he could be as good a wireless engineer as "you fellows," and would concentrate henceforth on selling wireless contracts and service—"bringing in the money."

History has already separated out the few grains of truth from the much overblown camouflage flak in the story of the Titanic. The sinking was a dramatic event: an examination of the stock market options bought after the close of the market on the fateful day, and their subsequent sale after the great news was released, would suggest that something more than mere happenstance rewarded DS with a desk just outside Nally's office, his job as Commercial Manager at 26, leading on to General Manager at 30.

His rise was meteoric; the rough-and-tumble experience in the early stock market stood him in good stead later on when he worked with Joseph P. Kennedy, and FDR behind the scenes, and Mike Meehan was "out front." In a later manipulation, RCA common stock jumped from $22 per share in June to $550 in November of the same year without ever paying a single penny in dividends. This was merely one facet of Joe Kennedy's very profitable pasttime of "cornering the shorts"—a game well known in Wall Street and now hopefully outlawed by the SEC.

History seems clear that DS was the right man in the right place at the right time. The sales figures of RCA tell a mute but indisputable Horatio Alger-like story of a poverty-stricken Russian Jewish boy who made good in a then WASP dominated financial world. Without a university education, he had obtained a high school equivalency diploma to take an EE course at Pratt Institute.

With figures such as these, who needs a university education, even at the Harvard School of Business Administration!

Year	RCA	Other Data
1921	$ 1.5	Less than 10 broadcast station licenses
1922	11.3	28 licenses
1923	22.5	583 licenses
1929	182.1	NBC (subsidiary) grossed $22 million alone

The significance of such growth was not wasted on Harvard; they encour-

aged publication of the RCA story.

Throughout 1920 to 1930, RCA was a sales agent only; although radio sets and other apparatus carried the RCA label, they were manufactured by General Electric (circa 60%) and Westinghouse (the remainder). DS had Elmer E. Bucher as his man Friday; he trusted EEB with everything except money. That he handled himself.

It was Bucher who was transferred from 326 Broadway to master-mind the coordination and marketing of radio; he was an outstanding success. Later (1928) when Owen D. Young decided that the Radio Group should "declare war" on ATT in sound films, DS moved Bucher into that slot at RCA Photophone Inc., another new industrial frontier.

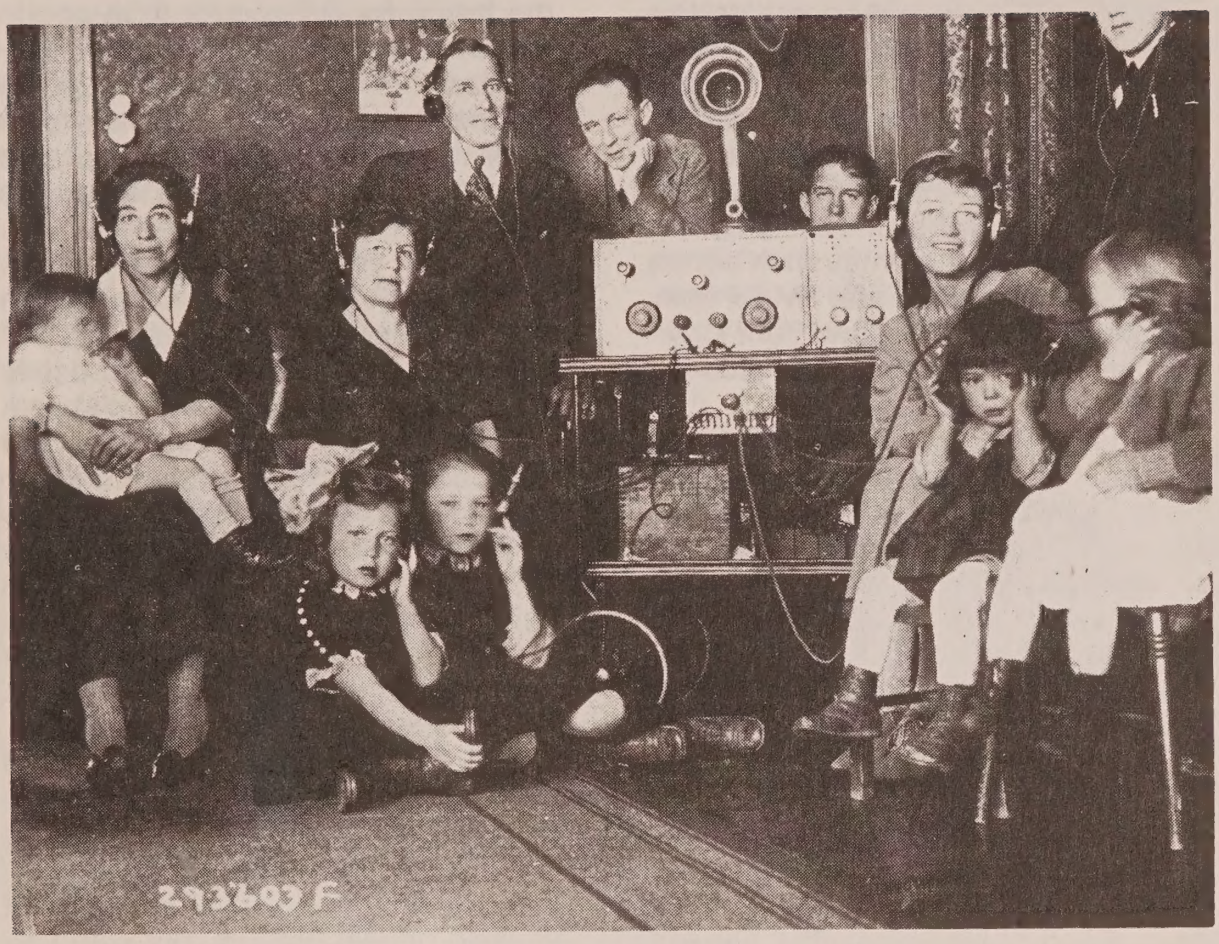
Bucher was "a practical man"; he wrote "Practical Wireless Telegraphy" —a volume every old brass pounder can not forget. What is still virtually unknown today is that Bucher was a teacher-historian at heart; he has written some 39 volumes of about 500 pages each on the history of RCA. These repose quietly in the Library of the David Sarnoff Research Center at Princeton, New Jersey. If as often seems the case, engineers abhor history, neither Bucher nor DS were engineers by that queer definition. Both were scholars, each in accord with his own unique and valid definition.

During the crucial decade, Owen D. Young of General Electric, perhaps the finest of America's farsighted genius industrialists, watched DS carefully indeed. Sarnoff's very mildly expressed but persistent beefs to Young about poor coordination of manufactured RCA products through the Manufacturers Design Committee and his astute observations on American finance struck a highly responsive chord with Young. When the President asked Young to negotiate a revision of the Dawes Plan for German Reparations (WWI), Young asked Sarnoff to go along as a financial technician. Both sailed from New York on Feb. 1, 1929; they had expected to return within less than two months. Negotiations with Dr. Hjalmar Schacht, the German representative, proved very sticky; it was the middle of June 1929 when they finally returned with the Young Plan as a signed document. Young never hesitated to credit Sarnoff's bulldog determination in getting the German signatures. Schacht's language referring to Messrs "X and Y," the Americans, is not complimentary.

Before DS left for Europe, he had already obtained Young's approval of his provisional plans to take over the Victor Talking Machine Company in Camden and to start manufacturing in Camden under the RCA label. And he was more than happy to put the steam behind Young's plan to compete with the Telephone Company through RCA Photophone Inc., the sound motion picture equipment subsidiary. Obviously, too, RCA manufacturing in Camden would include not only radio but sound films as well—and everything else that would be sold under the RCA label. "DS had it made." RCA started its own manufacturing in 1930. He had become the undisputed boss.

DS recognized very early that solid success in marketing derives not from advertising, but from a basic product filling a basic economic need. With GE and Westinghouse doing the manufacturing, he quickly saw his function as deciding what should be manufactured. He did not hesitate to adopt A.N. Goldsmith's magic music box and dress it up in his own language; RCA-Victor became the chosen modus operandi. Since music, and especially classical music, was an essential, he was deeply impressed in 1925 by the appearance on Station WEAF, the Telephone Company outlet, of the Victor Orchestra and singers John McCormack and Lucrezia Bori—and resolved to sponsor and encourage the best in music, which he did. Milton Cross and the Metropolitan Opera, the New York Philharmonic Orchestra and the NBC Symphony Orchestra should never be forgotten in American cultural history.

The more DS accomplished, the more he recognized must still be done to provide a growing industry with a supporting growing American culture.



A typical family group all listening to the "Sarnoff Music Box."

As a child, DS had been deprived of that culture through a devastating poverty; he was determined to use everything he had ever learned to eliminate poverty for his family and his children—and many of his (presumed) peers never knew and never understood.

In 1928 while on a visit to Westinghouse in Pittsburgh, DS had an opportunity (which he had contrived) to study Vladimir Zworykin closely. Sizing up his man, he decided that Zworykin was the one he wanted to become the fountainhead of the development of television by RCA at Camden. A.N. Goldsmith had already started daily service in television transmission from the RCA Technical and Test group at Van Cortlandt Park, the "country club" of RCA. Experimental transmission started with the Nipkow disk and soon had Felix The Cat turning around slowly on a phonograph turntable as the subject to delight the very small select audience. In 1929 that setup moved to 411 Fifth Avenue, top floor, the office of the management of RCA Photophone, along with Goldsmith. In 1930, NBC took over the chore and operated the setup under the call letters W2XBS. The rest is recorded history.

What should be quite obvious by now is that DS in seeking command of RCA never shirked or neglected the duties and responsibilities that are an integral part of that command function. At the beginning the decisions that he made and carried through were neither large nor far-reaching; they did not affect large numbers of people or large sums of money. After 1921 that changed rapidly. By his very planning procedure, he had set a collision course with Edwin Howard Armstrong, inventive creative genius and superb engineer from Columbia University, the protege of Prof. Michael Idvorsky Pupin,

inventor of the (telephone) loading coil, the fundamental device for circuit loading. ATT had paid apparatus royalties to Pupin, making him a millionaire. Pupin often used his own money to buy for the Engineering Laboratories equipment that was purchased by him primarily for the teaching and training of Columbia University School of Engineering students; such bore a modest small nameplate; "M.I. Pupin, Columbia University New York City." Armstrong had been one such student, his favorite.

In 1929, Pupin would drive to 116th Street, parking his chauffeur-driven Rolls Royce, with uniformed chauffeur of course, in front of Alma Mater, rain or shine, instructing "his man" when he would expect to be taken home after his lectures and chores as a professor. It was Pupin who had invited the very skeptical ATT to see the closed black box that Armstrong had used earlier to demonstrate regeneration, formally disclosed as U.S. Patent 1,113,149. That number was displayed clearly on a nameplate of virtually all RCA-licensed apparatus, the makers of which paid royalties thereon. RCA and DS did well financially on this and Armstrong's later patents such as the superheterodyne. The Radio Club had been quick to recognize the outstanding work of Armstrong; he was elected President.

In 1926 The Radio Club honored two new Honorary Members, Professor Pupin and David Sarnoff. A.N. Goldsmith had been elected an Honorary Member earlier in 1922. But only Edwin Howard Armstrong has been honored by the Radio Club by having the Armstrong Medal award, our highest award to this very day, named for him.

The stock market crash of October 1929 and the Depression that followed did not shake DS in his confidence in his long-range plans. Although Kennedy was completely out of the market when the crash occured, some key RCA employees, originally with GE and Westinghouse, who had invested their hard-earned savings in such RCA affiliates as RKO, recommended to them by DS, were virtually wiped out. Doggedly DS held on to his big idea that the future for DS and for RCA as run by him would be television; it was nip-and-tuck in 1932 when the gross dropped to one-third of its comfortable level of 1929 and the net became a loss of over $1 million, a loss for the first time in more than a decade.

As each year passed after that, he saw business improving, and television development costs rising rapidly. But he also saw tangible results—and they were truly tangible—Zworykin's work was beginning to show results on the boob tube as well as in patent applications in the Patent Office. To many at the time, the optimism displayed by DS was "whistling in the dark." DS knew better. Humorists have often said, "If you want to bet on a horse race, you'd better speak to the horse in horse language."

By the time Armstrong had patented his frequency modulation and offered it to RCA, DS was already committed too deeply in television to back out. Perish the thought that RCA would ever go on without him, but with FM. The magnitude and cost of FM operations required to buy and to market FM from the Major was far too high; and after all, a picture is worth 10,000 words. The collision was dead ahead. With full speed ahead ordered by both, the Armstrong decision made after the Sarnoff rejection, the result was devastating.

After the collision occurred, David Sarnoff had lost a life-long admired friend, Howard Armstrong had acquired what seemed a really vicious enemy. Neither man was entirely correct and neither was entirely wrong.

The truth, harsh as truth always is, lay in the gray area between black and white. Each man had acquired in his amazing lifetime, (one in which his accomplishments can be properly called superhuman) a differnt set of values. The clashing values were poles apart, and a rigid setting of course guided by those unbending values could result only in a devastating collision, with permanent injuries to both.

And thus it was that when Major

Armstrong died, there appeared at the church services a silent lonely man who never exchanged a word with any of the Radio Club officers or members who had come to show their respect for their fallen hero. The silent man was David Sarnoff, whose heart was filled with grief, for he had lost forever a man he had once loved and admired and whose friendship he could now never regain.

And when the General died, a tall silent ghost was present at Temple Emanu-El. It was the ghost of Howard Armstrong. He too was silent but was not seen by any human. Perhaps at that point, Howard, who had crossed the River Styx earlier, was again joyful, since the Major and the General could now discard their uniforms and ignore their military ranks, and re-establish in Valhalla that friendship which had been so rewarding to both in the beginning.

Both men were geniuses. It is a fact of life that geniusés, being what they are, are hard to live with. But this world must have genius—and it must soon prepare itself for the inconvenience and downright cussedness of genius —if it is to survive, as it most certainly will.

EDWIN H. ARMSTRONG

MEL'S CORNER

It seems radio collectors have interests in all sizes and descriptions of sets and in a number of categories!

They start out with finding an old set or two. Their interest grows and the next thing more sets appear—the beginning of a collection. However, they discover some of the additions to the collection are minus original parts or have been modified in an unlikely manner.

Modifications were typical—especially in the early days. All it took was a new wiring diagram to appear in Radio News, QST, or other publications exhorting long distance DX listings with these improved circuits and components.

Right away this meant a trip to their favorite radio store or mail order catalogue to scrounge up the necessary parts. This writer has on hand some fifty or more old bakelite panels salvaged from sets and cabinets that have been torn apart for parts stock. Many of these bear the names of prominent manufacturers long gone. These old panels tell a story! You can see the original mounting holes of tune condensers plus all kinds of additional holes drilled to mount updated types! Lo-loss condensers coming in style! Rheostat mountings—more holes and enlargements there—Vernier-dual knobs rheostats for fine filament control. The famous Bradlystats—more holes! Dial outlines still on the panels where these were changed over to the many vernier types.

The home-brew panels are something else. Now and then a set builder with an old hardrubber panel, while drilling and reaming holes, wound up cracking the whole panel in half! An early QST front cover magazine shows a frustrated builder in this predicament. Panels on these homebrews usually reflect a number of modifications. This was the fun of the game! The goal was getting DX stations and improving sensitivity. Arrangement of components, alignment of wires, audio transformers at right angles for squeals. Variable grid leaks of many descriptions—even one came out with a drip pan.

The single circuit regenerative receivers of these homebrews held on for years. In oscillation, they were miniature transmitters – driving neighbors crazy. In listening in for DX, one guy would be running on the edge of oscillation. Another frustrated fellow, hearing this, would flip his regen control up and down with squeals fighting for clearance. Another neighbor listening to a broadcast program on his expensive commercial receiver would complain to the radio dealer he got the set from. It was chaos in the metropolitan areas with antennas close by.

Those days become history, but now and then on the AM bands an oscillator will swing by—someone tuning what we now call a collectible! Brings memories of the days of yore?

Component collectors? Those of us who get tired of looking at sets with interesting parts buried inside cabinets out of view are into this category. Variometers for instance–there are many makes and types of various early manufacturers that provide interesting displays.

The early wood types—the later Loloss – the basket weaves – and the various couplers with multi-taps. And prior to this, the slide tuners—and best of all – the array of early loose couplers of all sizes – from 25000 meters and on down the scale! Some of these are beautiful to behold in Chambers—Clapp Eastham – Klitzen Signal—Meteor—Duckworth—Electro Importing—Duck—Edgecomb Pyle—to name a few. Even some home-mades, well made.

Crystal detectors are another category—so many different makes and types. The prize ones of Wireless

Specialty and those of WWI vintage in the military. Those with multiple crystals and the many different types of crystals used then. Galena—Silicon-Bornite-Iron pyrites—fools gold-Zincite—and many others. The electrolitics were in an early class by themselves. Difficult to adjust with the needle in the acid pot. The Radioson of Electro Importing Co. was a marvel of its day. Very few of these exist in collections now.

The component collectors have their special interests. The tube collectors are the most prominent in this category. It is amazing how much research has been documented on the developments of the vacuum tubes. The works of Gerald F. J. Tyne and his publishing of the book "Saga of the Vacuum Tube" are most outstanding, and represent a lifetime of research. Historians in years to come will be indebted to this fine gentleman.

Component categories and their related history are getting into such fields as loud speakers, various types of meters and test equipment, collections of books, catalogues, magazines, and even advertising display items. Then there are those who have fine collections and displays of microphones mainly. The Museum of Ralph Williams, Long Island, N.Y., contains many components as well as sets. Outstanding is the fabulous collection of Atwater Kent breadboard models—from the first production to the end of the breadboard era. Components on these boards are readily visible. A far cry from the black boxes we see today with their chrome trim!

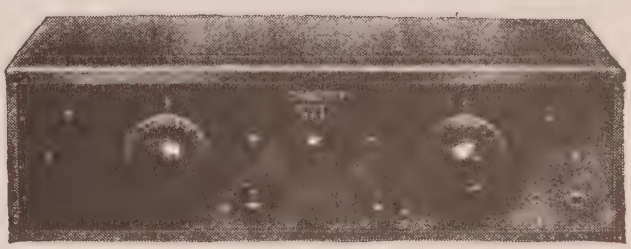
The Museum of the Antique Wireless Association, Bloomfield, N.Y., has an endless display of components beyond belief. To some collectors, these are more important than the vast array of sets themselves with components inside cabinets. The majority of prominent collections, of which we could name many, have interesting displays of components as well as sets.

We now hear of collectors evaluating the merits of these early items, firing them up and logging distant stations. We assume this is done in breadboard fashion, similar to the old days when we test first—cabinets later.

Happy DX out there—let's hear from you!

CHEERIO!!

Mel Comer
205 Roberts Road
Ardmore, PA 19003



DXING THE CROSLEY TRIRDYN

The Crosley Trirdyn utilizes a unique and interesting circuit, "a combination of Armstrong Regeneration, Radio Frequency Amplification and Reflexed Audio Amplification." As far as I know, no other commercially produced radio used this arrangement. People must have liked the radio as many of them continue to surface at flea markets and radio meets. The radio was produced in several different styles; however, electrically they are near identical.

Crosley's advertising made many claims for the Trirdyn. An August 1924 Radio News ad reads "This three tube receiver gives the efficiency and volume of a five tube receiver. We believe it is the most efficient receiver on the market at any price for bringing in long distance stations." The Trirdyne uses a single tube for the reflexed rf and first audio stages. A regenerative detector and normal second audio stage use the other two tubes. I have always been curious as to how well this circuit works. Writing this article gave me a good excuse to find out.

Electrical restoration on the Trirdyn consisted of the usual replacement of the two audios. Luckily I had good original Crosley audios in my junk box. Another problem occurred with the rheostats. They were open where the different types of resistance wires are twisted together. Using a small screwdriver, a short length of buss bar was pushed into the rheostat to restore continuity. After using some contact cleaner on the appropriate areas, the set was ready to be tested.

Crosley used universal rheostats in their equipment. Tubes which could be used included the UV200, UV201A, WD12, and UV199 in an adaptor. Although all of the above tubes were tried, the best performance was obtained with an RCA UV200 as a detector and Deforest DV2s (01A equivalents) for amplifiers. For some reason the DV2s were much less critical of the filament voltage. Many of the 01As tried caused squealing at the lower end of the dial. Could anyone let me know if there is an internal difference between DV2s and 01As?

A Musicmaster horn was used as the loud speaker, while the headphones used were the Baldwin type C. The same 6 volt gel cell and 22.5 volt Everready #763 batteries were employed as in most of the previous articles. A detector B voltage of 22.5 volts was used, while the amplifier B voltage was 90 volts. A C voltage of 4.5 volts was supplied by three AA batteries in series.

Connecting this radio for operation is easy, everything is clearly marked. There are two antenna connections, # 2 is more selective to tune out strong stations. Plugging the headphones in automatically disconnects the second stage of audio. On the interior of the cabinet is mounted a small tapped coil, which was connected in series with the antenna. The directions which came with my Trirdyn do not mention this coil. The wiring diagram in the Gernsback manual calls it a loading coil. While using the radio, I found the use of the coil could help in the reception of weak signals, and also helped to tone down stations that were too strong and overloaded the radio.

The first step in using the Trirdyn is to turn the detector rheostat up, looking for proper filament glow. Next turn the amplifier rheostat up and plug in the headphones. If the set howls, turn up the amplifier rheostat until it stops. Tuning as in many TRF sets consists of keeping the dials at approximately the same numbers while listening for a station. After a station is located, push the varind (regeneration) knob back and forth listening for the best sound. The tuning dials may need a slight adjustment. Then readjust the rheostat knobs for best reception, keeping a low voltage on the tube filaments. To use the loud speaker, unplug the headphones.

The DX reception of the Crosley Trirdyn was not as good as several of my other sets. In my opinion the Trirdyn did not live up to Crosley's claims for long distance reception. The time of year and other factors could have caused this. The radio tuned from 540 kHz to 1450 kHz. Tuning the top of the broadcast band was different. This is not a defect; at the time of the Trirdyns production very few stations were broadcasting up there.

I was pleasantly surprised at the overall performance of the Trirdyn. Using only three tubes, the radio gave good volume and fair reception. The only problem was the howling of the radio if not adjusted properly. A small amount of practice helped to overcome this. The low price ($65.00 in 1924, $50.00 in 1925) along with the decreased operating costs made this a good choice for the budget minded radio fan.

Jim McKinnon
605 No. Bridge St.
Bridgewater, NJ 08807

CROSLEY TRIRDYN RECEPTION RECORD

kHz	Station	City, State	Ant.	Dial 1	Dial 2
540	WLIX	Islip, N.Y.	1	92	91
560	WFIL	Philadelphia, Pa .	1	93	93
570	WMCA	New York, N.Y.	1	80	80
580	WHP	Harrisburg, Pa.	1	77	77
590	WARM	Scranton Pa.	1	74	74
610	WIP	Philadelphia, Pa.	1	69	69
620	WSKQ	Newark, N.J.	1	66	66
660	WNBC	New York N.Y.	1	58	58
700	WLW	Cincinnati, Oh.	1	50	50
710	WOR	New York, N.Y.	1	48	48
770	WABC	New York, N.Y.	1	43	40
790	WAEB	Allentown, Pa.	1	41	38
800	CKLW	Windsor, Ont.	2	39	38
830	WNYC	New York, N.Y.	2	37	35
860	WTEL	Philadelphia, Pa.	2	34	32
880	WCBS	New York, N.Y.	2	32	29
900	WBRV	Boonville, N.Y.	2	29	27
900	CHML	Hamilton, Ont.	2	28	28
910	WBSA	York, Pa.	2	29	26
930	WPAT	Patterson, N.J.	2	29	25
950	WPEN	Philadelphia, Pa.	2	26	24
1000	WRNJ	Hacketstown, N.J.	2	23	21
1010	WINS	New York, N.Y.	2	23	20
1020	KDKA	Pittsburgh, Pa.	2	22	20
1050	WHN	New York, N.Y.	2	21	18
1060	KYW	Philadelphia, Pa.	2	20	18
1070	WKMB	Stirling, N.J.	2	20	17
1130	WNEW	New York, N.Y.	2	18	15
1170	WBRW	Somerville, N.J.	2	18	13
1210	WCKU	Philadelphia, Pa.	2	14	11
1320	WKAP	Allentown, Pa.	2	9	8
1350	WHWH	Princeton, N.J.	2	7	5
1450	WCTC	New Brunswick, N.J.	2	4	5

Our newest members

Joseph J. Veliky, Philipsburg, PA
The Rev. Jos. Hess, Paoli, PA
Ronald E. Frisbie, Akron, PA
John Feiser, Middletown, CT
Edward J. Carel, Blackwood, NJ
Brett Snyder, Malvern, PA
Jim Shulman, Malvern, PA
Jimmy Hoefer, Jackson, MS
Raymond E. Johns, Westwood, NJ
Homer V. Autry, Thonotsassa, FL
George Merriam, Golden, CO
Rodger L. Tarr, Tampa, FL
Sherman S. Nebel, Anchorage, AK
Ralph T. Olsen, Dorset, VT
D.H. McDonald, Madison, CT
John Massey, Richmond, VA

George Hook, Jr., Louisville, KY
C. William Johnson, Atlanta, GA
Frank M.S. Lyons, Philadelphia, PA
Frank F. Orcutt, Alameda, CA
Mel Keiser, Philadelphia, PA
Owen J. Rodda, Hackensack, NJ
Allan F. Haasken, Vienna, VA
Donald W. Herman, Havre, MT
Michael S. Sabodish, Sr., Cliffwood, NJ
John K. Folsom, Jr., Palm Bay, FL
Larry Nabe, Regina,
Saskatchewan, Canada
Michael McKenzie, Detroit, MI
Dr. Bedford A. Turke, Hollywood, FL
Michael E. Shade, Chicago, IL
Charles A. Furtak, Jr., Elmhurst, IL
REINSTATED:
C.A. Anderson, Weston,
Ontario, Canada
M.B. Gaskins, Campbellsville, KY
Robert Luedeman, Schoolcraft, MI

News from Charleston

The club has really lost a great friend with the passing of our beloved member and reporter, Mr. J.A. Moore, as was reported in the last issue. My name is Blaine Smith and I have been asked to carry on the reporting of our chapter news. It will be a difficult task to try to fill the shoes of such a kind and knowledgeable gentleman.

The annual meet will be history by the time this issue of the Gazette reaches the membership. One of the goals of our chapter at this year's meet was the establishment of the J. Albert Moore Memorial Award to be given annually for excellence in journalism. Details of this award, which so appropriately memorializes Mr. Moore, will be included in the next issue of the Gazette.

One final note for this month. The meeting room which Mr. Moore reported on back in the summer is now available for our chapter's use. Several of our members have spent many hours fixing the place up and it really looks nice. The area is actually in three sections. The first section contains the displays for our bookstore and supplies. The second section contains many radios and test equipment – some for display only and some for sale. The final section is the largest. It is carpeted, freshly painted, complete with desk and chairs to accommodate a fairly large gathering for our monthly meets.

That's all for now . . . later.

Blaine Smith
Reporter

Pennsylvania-Ohio-West Virginia

The newly-formed Pittsburgh Antique Radio Society is now meeting regularly. For details contact David Kraeuter, PARS Secretary, 506 E. Wheeling Street, Washington, PA 15301 or call 412 222-6678.

LETTER TO THE EDITOR:

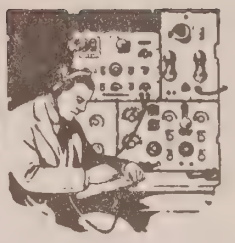
An article appeared in both the Atlanta Journal and Atlanta Constitution on May 21.

I have had some great results: 1) An interview on WCNN Radio about radio collecting. 2) A local TV station discussed taping a report for the 6 o'clock news. I was later bumped by Coca Cola's 100th Anniversary report. 3) About 40 calls from people wanting to sell sets. (Scott AW15, Globe battery set, 1948 Philco TV/AM/Phone etc. (and one collection of 25 AK's – 55's to 60's). 4) and one I purchased a Thoms Wonder Radio Shop one tube (WD-11) Wonder Radio made in downtown Atlanta, Georgia! I bought it from the 74 year old brother of the original owner who bought it in 1922 to listen to new WSB radio. 5) Georgia Tech called to ask if I would attend their June 12th reenactment of Arthur Murry's 1920 broadcast of alive band from Georgia Tech to the Capital City Club where Arthur Murray's students were waiting to dance to the music. They have asked me to display a few of my receivers at this $100 a plate affair.

Thought you would like to hear all this.

Larry V. Flegle

Old-timer's Notebook



James A. Fred © 1986 J. Fred –

I am happy to report that our readers are beginning to respond to our requests for help. At the end of this story you will find the answer to where to find resistance wire.

Q. Dear Old Timer: I have a Belmont radio in an upright wooden table model cabinet. It is one of my favorite radios and I want to restore it, but among other problems it has a broken dial drive disc. This disc is about 4 inches in diameter, it is made of clear plastic about 1/32 inch thick. It is warped and has a tear that runs almost all the way across. How can I repair or place the disc?

A. The disc is driven by a shaft and two pinch washers that supply the friction to rotate the tuning capacitor and dial pointer. If the disc isn't exactly the right diameter, the capacitor rotation and dial calibration will not be right. Here is how I solved a similar problem.

First carefully dismantle the dial and remove the disc. Tape the disc down to a rigid surface and carefully measure the diameter. Either find a piece of 1/32 inch plastic or a piece of XXP phenolic material. The phenolic is translucent and will allow light to shine through. Cut a disc about 1/4 inch larger than the finished diameter. Find the center and drill a 1/4 inch hole through it. Get a piece of solid wood 1/4 to 5/16 inch thick and cut two discs the same size as the plastic. Use a 1/4-20 bolt, nut, and two lockwashers to sandwich the phenolic between the two pieces of wood. Lay out a circle, on one piece of wood, a little larger than the size you need. Saw away as much material as you can from the wood, phenolic sandwich staying outside the circle you drew. If you have a lathe, carefully turn down the sandwich to the exact diameter you measured on the original disc. If you have no lathe, look for a friend who has one or sand, file, or grind the diameter you need. Carefully remove the brass hub from the old disc. Enlarge the hole in the new disc until the hub can be properly installed. You can stake the hub in place with the round end of a ball pein hammer. Reassemble the dial and it should work like new.

Q. I am restoring a Philco radio that has the bypass capacitors embedded in black plastic containers. There are also coupling capacitors and tie terminals in these containers. How can I replace these capacitors and have a neat looking restoration job?

A. At this point you will have to decide what kind of a restoration job you will do. To make the radio look like it did when it left the factory, you can do it the hard way. The hard way to restore the capacitors is to melt out the potting compound and insert new, small, proper value capacitors and repot the capacitors. You can fill the plastic container with the old remelted compound, or you can use "Black Knight" plastic auto body putty.

The easier way is to remove the old black plastic containers. Using the same mounting hole, fasten a threaded spacer, about 3/4 inch long, in place. Use a short screw from the top of the chassis. Using another short screw, fasten a tie terminal to the spacer. Use a tie terminal with the same number of tie points as the original capacitor had. Now connect modern capacitors of the proper value and voltage to the tie terminals. Also connect any wires you remove from the tie terminals. The radio is now electrically restored.

Now you are saying that I've suggested destroying the appearance of the under side of the radio chassis. You are right, but only you can decide

what degree of restoration will make you happy. If you are a purist, you will take the "Hard Way," if you are a realist, you will take the "Easy Way." It is up to you.

Incidentially you have a similar choice with some A K radios. They have formed steel cans, about 1/2 inch high, with potted capacitors inside and solder terminals outside. The "Hard Way" is to unsolder the lids on the cans, remove the old capacitors, solder in new capacitors, repot them, and resolder the can lids. The "Easy Way" is to mount tie terminals, under the chassis, solder in new capacitors and connecting wires. You decide, the "Hard Way" or the "Easy Way."

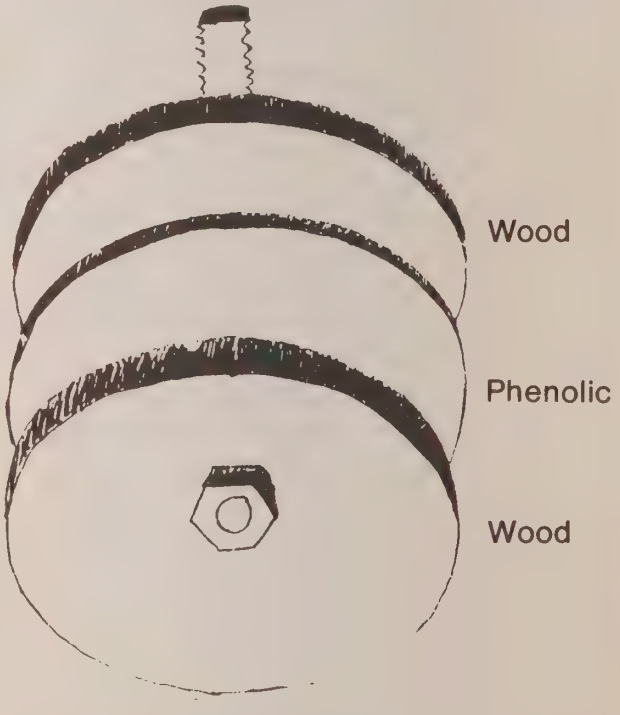
Q. I like to restore my radios, but I am having trouble finding hook-up wire with the right covering. The 1930's radios were wired with wax impregnated, cotton covered wire, called "Push Back" insulated wire. Some were wired with rubber insulated wire. Where can I get suitable wire to rewire a 1930's type radio?

A. During WWII it was necessary to develop new insulation for hook-up wire. Radios used in tropical climates had to have an anti-fungus varnish sprayed over all components and wiring. Also all insulation had to be made from synthetic materials such as neoprene or nylon.

I find a good source of wire to be very early TV sets. I recently bought an old radio-TV shop. I only got two 1920's radios, but there were 15 or 20 junker TV sets. The oldest TV was a Midwest 16 inch chassis with a picture tube that had a metal funnel. You may have a Midwest radio or remember them as having a large number of tubes and many wave bands. The TV set looked as if it had been made with leftovers from the radio manufacturing days. Because mica capacitors are hard to find, I salvaged all those in the set, also nearly 50 feet of old time hook-up wire, and a huge power transformer.

Magnet wire isn't easy to buy any more, but you can salvage nearly 1/2 pound of mint condition wire from the focus coil. This is an assembly around the neck of the tube containing a permanent magnet and a coil of wire. Only the early TV sets had focus coils containing wire, the later ones used only the magnet. Most of the focus coils had riveted construction so all you have to do is grind or drill out the rivets and there is the magnet wire.

Before leaving the subject of salvage, there are three more items worth mentioning. They are the speaker, output transformer, and filter choke. The first TV sets usually had a 5 to 8 inch permanent magnet speaker which is just right for the 1930's wooden cabinet radios. If you must remove a speaker with a field coil from an old radio and replace it with a PM speaker, you must put an inductor in place of the field coil. The filter choke from the old TV set will satisfy the inductor requirement. Of course you will need a power resistor in series with the choke so the combined resistance will equal that of the speaker field.



0To turn thephenolic round, it must be sandwiched between two wooden discs. Do not use plywood. Be sure you start with discs that are larger than the finished diameter.

Our reader sent in the following suggested sources for resistance wire.

Dick Smith Electronics Inc., 390 Convention Way, Redwood City, CA 94063 puts out a 130 page catalog.

On page 39 of the catalog they list no. 28 AWG (.0134 Dia.) solderable resistance wire, 1.852 ohms/ft., at 13 feet for $1.00. The alloy is 45% nickel and 55% copper. This note was from Fred Butterfield in New Jersey.

Paul D. Nevatt, 1114 So. Stewart, Springfield, MO has a partial spool of .0035 diameter resistance wire that has 58.1 ohms per foot. He is willing to share it at 25¢ per foot.

You can write to Abbeon Cal, Inc., 123-535F Gray Ave., Santa Barbara, CA 93101 and get their list of available resistance wire. They stock 4 sizes and sell in lengths of 100 feet.

That's all for now, keep those cards and letters coming.

James A. Fred
Rt. 1, Box 41
Cutler IN 46920

All ads and Swap Shop items are printed in the Gazette free of charge. We do ask that you write your ad on a separate sheet of paper, type if possible, or print, and be sure to include your name and address. We reserve the right to edit all ads. ARCA is not responsible for any transactions, of course.

FOR SALE: Over 200 Battery and A.C. Radios. Send large SASE with two stamps for 5-page Revised List.

Donald Juleen, 6250 Ledge Rd.
Sturgeon Bay, WI 54235 Tel: 414 743-7922

WANTED: Electro Importing helix in good condition. Will pay reasonable price. Must be stamped E. I. Co.

F.A. Nickols, 720 E. Eldorado
Appleton, WI 54911

FOR SALE: RCA Slimline Microphone MI-4036, Type No. 74-E $35 plus shipping charges; 1922 NESCO Catalog $25 plus shipping charges.

F.W. Chapman, W8TKR
1130 North Lake Parker Ave., Apt. B-218
Lakeland, FL 33805

FOR SALE: New dial scales for Sparton AC-62, AC-7 and Radiola 17, 18, 60. $7.50 pp.

Clinton A. Blais, P.E., 613 Juniper Drive
O'Fallon, IL 62269

WANTED: Radiomarine receivers models AR-8500; AR-8503; AR-8510 and Mackay (Federal tel.) mod 128 series.

Walter Britton, 225 So. 17th St.
St. Helens, OR 97051

CLEAN UP your A K cathedrals with .007 mylar photo marked A K dial faces. For replacement over existing dials, on A K 80, 82, 84 etc., full size as shown. $5 each.

John Drake, Box 942
Madison, CT 06443

FOR SALE: Electronic magazines 1930-1947 bound, $180; 215A tubes with U.S. Navy unopened boxes, 4 for $27.50; Echophone 3 tube set $185, 167 new parts in orig. boxes 1922-29. SASE for listing.

Floyd A. Paul, 1545 Raymond Ave.
Glendale, CA 91201 Tel: 818 242-8961

FOR SALE: Over 200 Battery and A.C. Radios. Send large SASE with 2 stamps for 5 page revised list.

Donald Juleen, 6250 Ledge Rd.
Sturgeon Bay, WI 54235 Tel: 414 743-7922

OLD STYLE bulb shaped tubes. Send large 2 stamp SASE for complete and up-to-date photo list.

Ron Boucher, 376 Cilley Rd.
Manchester, NH 03103 Tel: 603 669-1698

WANTED: Anything Silver-Marshall especially literature & advertising.

Larry Flegle, 210 Wylie Lane
Woodstock, GA 30188

FOR SALE: Almost all of the parts for a Kennedy XV type 430 . . . For a Grebe Syncrophase nice front panel with the three variable condensers and dials . . . Echophone model A panel . . . some Kolster 6D parts . . . For your display room lots of nice boxed parts, display boards, brochures on advertising. Large SASE for list.

Joe Horvath, 522 Third St.
San Rafael, CA 94901

FOR SALE: 1933 Majestic 370 FOS pg. 107, good, untested $20.00. 1925 Amrad T5 cabinet, excellent, $20. 1926 Amrad S522 $100. excellent, works, NT. BC14A crystal set $250. excellent, works. Clapp Eastham HR $175. near mint, works. RCA BP-10 $30.00 very good, works, plays weak. Magnavox R-3 speaker, excellent, works, $70. Tinned square Bus. Bar for restorations or projects, 36 ft $7.50, 72 ft $14.

Andrew Mooradian, 5 Priscilla Lane
Winchester, MA 01890

COLLECTOR hungry for early wireless - catalogs and 1 tubers. Will buy for cash or have a few old telephones and phonographs for trade.

Bill Hoffman, 2570 Falcon St.
E. Meadow, NY 11554 Tel: 516 826-2135

WANTED: Detector/one stage amplifier TA unit for a model 12 Atwater Kent Breadboard recently acquired.

Don Herman, 1061 Boulevard
Haver, MT 59501

FOR SALE: Radios, tubes, parts, books, test equip., for the 1920's thru 1940's period. For list send SASE to:

Howard W. Granoff, 2445 Lyttonsville Rd.
Silver Spring, MD 20910

ANTIQUE Electronic Supply of Tempe, Arizona is expanding its list of items for antique radio collectors. We have acquired collections containing many interesting items. Be sure you're on our mailing lists for the latest catalog supplements coming out regularly.

Antique Electronics Supply, 688 W. First St.
Tempe, AZ 85281

CLEARING OUT balance of radio collection. Many items remain, make quote for everything, or will sell individual items. Send SASE for list.

Mrs. Joanne Enns, 5138-236 St., R7
Langley, BC V3A-4RI

FOR BOOKS, catalogs, instructions material, see our latest listings. New catalog now available at $2.

Puett Electronics, P.O. Box 28572
Dallas, TX 75228

FOR SALE: Parting with several fine sets in my collection. Why not give me a call business hours at 1-800-323-1284 for descriptions.

Charles Barone, Des Plaines IL

WANTED: Western Electric tubes and equipment, amplifiers, speakers, miscellaneous items. Send list of items you wish to dispose of to:

Trial Electric Products Inc.
409 Yotsuya Sun Heights 6-1
Yotsuya 4 Chome, Shinjuku, Tokyo 160 Japan

WANTED: Most everything in Western Electric gear. Tubes, speakers, microphones, amplifiers.

David Yo, P.O. Box 832
Monterey Park, CA 91754 Tel: 818 576-2642

RADIO AGE! The magazine for collectors, wide circulation, free ads, outstanding articles. Write for sample copy at $1.50 pp.

Radio Age, 636 Cambridge Rd.
Augusta, GA 30909

I BUY radio/wireless items pre 1925, books, magazines, catalogs, receivers, transmitters, speakers, crystal sets, detectors, tubes and spark gear. Also collections any size. Hundreds of items always in stock. Try me!

Jim Kreuzer, 6270 Clinton St.
Elma, NY 14059 Tel: 716 681-3186

REPAIRS! Overloaded modern Hi-Fi speakers keep us busy daily. But–we also specialize on the problems of antique speakers. Many parts in stock, or we make them when necessary. Let's hear from you. Rates reasonable.

Dixie Speaker Repair Service
545 Shades Crest Rd.,
Birmingham AL 35226 Tel: 205 823-0575

FOR SALE: Rare C.E. Cunningham Remler Super Eight, eight tube Super-Het, excellent condition. Operating less tubes.

Tad Drogoski, 507 Coal Valley Rd.
Jefferson Boro, PA 15025

WANTED: Early Hallicrafters communication receivers, transmitters, and any early catalogs or literature pertaining. Advise what you have available and cost.

Max DeHenseler, 333 East 42nd St.
New York City, NY 10017

FOR SALE: Early fine reprints of radio catalogs. DeForest, Tuska, RCA, Kennedy, Wireless Specialty and others. Send SASE for list, all at reasonable prices.

Arthur Aseltine, 345 Glenwood St.
Ann Arbor, MI 48103

WANTED: Need DeForest parts to restore my interpanel set. Need dials and most internal parts. Please advise what may be available.

R. Burick, 6 Whetstone Dr. #5
Gaithersburg, MD 20877

WANTED: Solar powered radios made by Hoffman, Zenith, Motorola, Admiral, etc. and amateur experimentors. Also interested in other solar powered devices, toys, experimentor kits, photovoltaic cells andpanels from the 1950's and 1960's.

Randy Liebermann, 305 East 40th St., Apt. 5J
New York, NY 10016 Tel: 212 867-5747

WANTED: Crystal set construction schematic, parts and units.

B. Turbe, 660 N. Dixie Highway
Hollywood, FL 33020

FOR SALE OR TRADE: Accumulation of battery radios, speakers, parts and accessories, prefer a trade for Atwater Kent #5 or 10 breadboard in good original working condition. For list send a SASE to:

Joe Veliky, 9 S. Second St.
Philipsberg, PA 16866 Tel: 814 342-2328

WANTED: Chassis photo and internal parts for 5E-1440 compass receiver.

Will Jensby, 645 Giannini Dr.
Santa Clara, CA 95051 Tel: 408 296-6071

FOR SALE: WE VTq, NE205D new, NE203B (VT1) new, NE 215A (peanut), UX201A-brass tip, WD-12 (tip) McCullogh AC32, Rogers R30, many early four pin type tubes. Can. Crosley C5 (201A's), $100. Many interesting radio and telegraph books for sale. Send for list.

Victor P. Chartrand, 727 Fraser Ave.
Ottawa, Ontario K2A 251

WANTED: Very old tubes, bulbs or bulb collection. Also very old receivers and transmitter for Siemens & Halske and Telefunken; TV neon lamps and *little* demonstration-electromotor. Will be at the Flea Market in Canandaigua in September.

Franz Mock, L
Ledererg 25, A-3500, Krems Austria

FLASH? Antique Radio Classified will be publishing for its third year. Send stamp for new rates or $2.00 for sample.

Antique Radio Classified,
9511 Sunrise Blvd., #J-23,
Cleveland, OH 44133

WANTED: Murdock Nuetradyne speaker horn.

Merrill Bancroft, 169 S. Row Road
Townsend, MA 01469

WANTED: Any Grebe detector or detector/amp, RORD, RORH, RORA, RORG, or RORL.

Jim Collings, 12005 Victoria Pl.
Oklahoma City, OK 73120

WANTED: Cabinet for Philco 90. Chassis for AK 84.

David T. Walters, 13805 Florida Ave.
Cresaptown, MD 21502 Tel: 301 729-3133

FOR SALE: Crosley New Buddy, AK Kiel (pick-up only) Philco Jr., Zenith, GE, Belmont Tombstones, many art deco wood box sets, plastics. SASE for list.

R.E. Ripley, 2276 Holloway Ave.
Maplewood, MN 55109

FOR SALE: Riders Radio Manuals: Vol's. 8, 10, 11, 12, 13, 14, 15, 19, 20, 21. Rider's TV manuals: Vol's. 1 thru 27 inclusive. Looking for: Riders Radio Manuals: Vol's. 3, 4, 5.

Tolbert V. Powell, 1073-15 Lancaster Blvd.
Mechanicsburg, PA 17055

FOR SALE: 1927 Government Call Book, $20. Ford Spark Coil (T model) $15.

F.W. Chapman
1130 N. Lake Parker Ave., Apt. B218
Lakeland FL 33805

FOR SALE: Authentic reprints of the original operating instructions for Arvin Hopalong Cassidy Radio. Unique item written for kids. I If you have a "Hoppy," you'll want one of these. Send $4 for each copy to:

Ed Ripley, 2276 Holloway Ave.
Maplewood, MN 55109

FOR SALE/TRADE: Battery sets, tubes, manuals, E-TS. Send SASE to:

Bob Husted, 270 N.W. 3rd Ct.
Boca Raton, FL 33432 Tel: 368 8358

FOR SALE: Several Philco Cathedrals, Belmont, Delco, GE Tombstones, numerous art deco wood and plastic sets. Coin operated hotel radios from early 40's, much more. SASE for newest list.

Ed Ripley, 2276 Holloway Ave.
Maplewood, MN 55109

Judging Criteria for Old Equipment Contests

Old Equipment Contests are always a key activity at radio meets and conferences. The display and the final results in the different classes and the wining entries seem to draw as much interest as the flea market. But for the contestants, the difficulty is the basis for the judges' evaluation. Reprinted below are the criteria used by the Indiana Historical Radio Society at their regional meets. As you realize, there should be different emphasis, depending on the kind of meet and its breadth of coverage. Local meets tend to emphasize restoration; national meets encourage the exhibition of extremely rare radios. The IHRS does an excellent job of combining these ideas.

The Official Judging Ballot for the old equipment contest requests the judge to evaluate the contest items with the following criteria:

1. Historical Significance
   Contribution to the art
   Contribution to social history
   Possession by a radio "great"
   Special Circumstances in contestant's family history

Does the entry contribute to the study of communication? Does the entry enhance the image of our Society and membership?

2. Uniqueness and Rarity
   Few-of-a-kind v. production run (uniqueness)
   Number originally produced (commonness)
   Number surviving (rarity)
   Original use and value

Does this entry amplify/illustrate/elucidate a phase of radio not commonly known today? Does it stand out from other entries because of function or survival?

3. Quality of Restoration
   Cleaning: external, internal
   Craftsmanship of repair: Mechanical/Electrical
   Conformance to original design (factory models)
   Restoration and original construction (homebrews)
   Parts substitution or rebuilding
   Finish: cabinet, parts, wiring, insulation, connections

Has the entrant done a craftsmanlike job in preparing for the show? (super finish does not earn extra points; no points are lost for depravation of age alone.)

4. Supporting and Illustrative Documentation
   Instruction books, service notes, production documents
   Construction data, plans for kits
   Original constructor's plans or sketches (for homebrews)
   Use of material found in publications of the time

Has the entrant gone to the extra effort of collecting and displaying the documentation that enhances the entry? Does the illustrative material add significance to the entry? Would the supporting documentaion be competitive by itself?

Each judging area is rated 0 to 5 with the sum of the scores for a total score.

ARCA would very much like to compare the criteria and weighing factors used in local and regional meets by the many groups that have contests. Why not send a copy of your club's contest rules to Ralph Williams? If you would like to have your standards published, let him know.

All matters re: THE OLD EQUIPMENT CONTEST to:
Ralph O. Williams
R.D. 1, Box 44
Orient, New York 11957

ARCA Old Equipment Contest
Louisville 1986

Category/Rank	Winner	Entry
I. Crystal Sets		
First:	Larry Wright	Nesco CN 597
Second	John Myers	Langdon Home Made
II. Regenerators		
First	Larry Wright	Crosley VIII
Second	Robert Lozier	Igranic (British)
Third	Bob Betz	Radiola Grand
Special Award	Pete Yanczer	Federal Proto
III. RF Amp Receivers		
First	Joe Willis	Fellodyne
Second	Robert Lozier	NORA K4W
Third	Jim Seppenfield	Crosley Bandbox
Special Award	Larry Flegle	Silver Cockaday
IV. Superhets		
First	Don Johnston	Scott World Record Super 10
Second	Larry Wright	Leutz C-10 w/coils
Third	Larry Flegle	Magnaformer
V. Advertising		
First	Geoff Bourne	A K & Radiola Slides
Second	Mark Tanner	Radiola Sign
VI. Loudspeakers		
First	Paul Corrette	Timbretone Horn
First	Jon Walker	Detroit Amp Horn
Second	Joe Willis	Yar-Lange Horn
Third	John Jones	Figured Wood Cone
VII. Novelty Sets		
First	David Johnson	Zenith Mini Console
Second	Geoff Bourne	Radio Lamp Co.
Third	Clay Seidel	Radio Keg
VIII. Detectors		
First	Geoff Bourne	Margo Bulb
IX. Rare Books		
First	John Terrey	The Work of Hertz
Second	Larry Wright	Leutz Texts
Second	Pete Yanczer	Easy Course in Home Radio
Third	Larry Flegle	Introduction to Radio
X. Test Equipment		
First	Larry Wright	GR240 Capacity Meter
Second	Ross Smith	Supreme Analyzer & Dayrad Tube Tester
Third	Jim Seppenfield	Sensitive Thermo Volt Ammeter
Best in Show	Don Johnston	Scott World Record Super 10

Judges: Geoff Bourne, Jim Troe, Jim Dreuzer, Clyde Trivett, Ralph Williams

Radio Hook-Ups Simplified

There is a vast and imposing array of supposedly different radio receiving sets now in existence. As a matter of fact, all may be classed in one or another of a very few types. An unbiased analysis of a new "world-beating" circuit will usually reveal that it is merely an old principle re-applied. The number of real innovations in radio circuits is very small, and most of the reports of tremendous results are due, no doubt, to some enthusiast who has just learned how to handle a circuit with success.

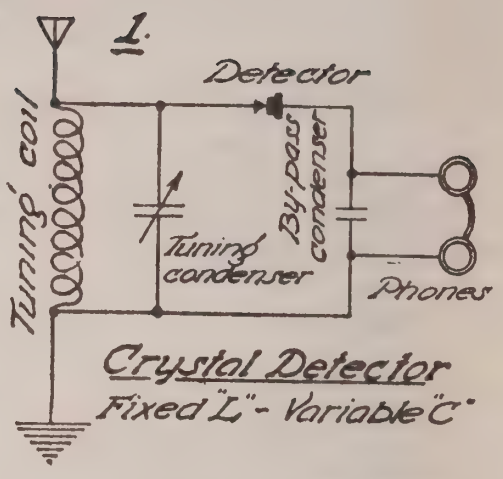
Most of the "trick"circuits are old friends disguised; in the majority of cases the only real differences are mechanical, or perhaps some refinement by which the usual circuit conditions are satisfied.

There are just three necessary functions of a radio set—reception, selection and detection—and there may be a fourth function, amplification. There are not many variations in the methods of reception and detection, but a very large number of different (and almost-different) receiving circuits can be cooked up, because of the many ways the several selection principles may be combined with different amplification circuits.

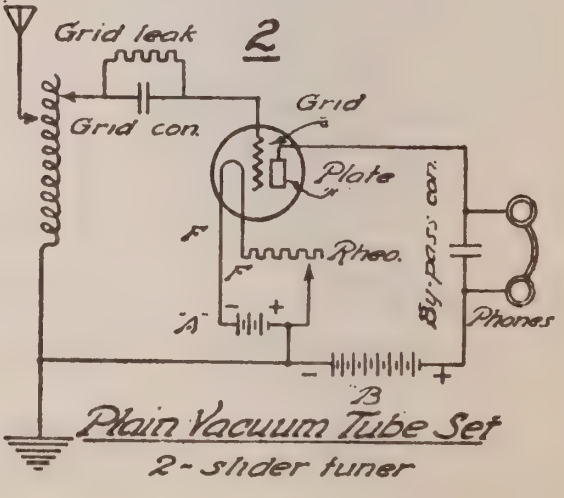
The Simple Circuits

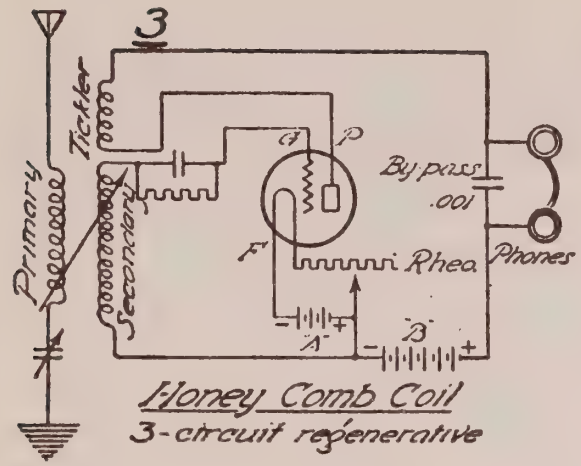
The simplest of sets is a tuning-coil set with a crystal detector. *Selection* is accomplished by the variable "tuning coil"—an *inductance*—which together with the capacity of the antenna system may be "tuned" to certain wave lengths. This tuning—*selection*—is made possible by the fact that a circuit containing an *inductance* (the coil) and a *capacity* (a condenser; the antenna in this case) will respond to certain wave lengths far better than to other wave lengths. A circuit employing a fixed "L" (inductance) and a variable "C" (capacity) is shown in Fig. 1. *Detection,* or rectification, is accomplished by the crystal.

The simplest set possessing amplification is the tuning coil and an *electron tube detector.* The selection may be accomplished by having the capacity fixed and varying the inductance (the tuning-coil), or by having the coil fixed and varying the capacity by means of a variable condenser, or by a combination of both methods, as in Fig. 2. The amplification is due to the natural amplifying properties of the tube itself —it not only acts as a check valve permitting current to flow in but one direction, but also operates as a control valve, allowing a greater or less current to flow through the plate circuit.



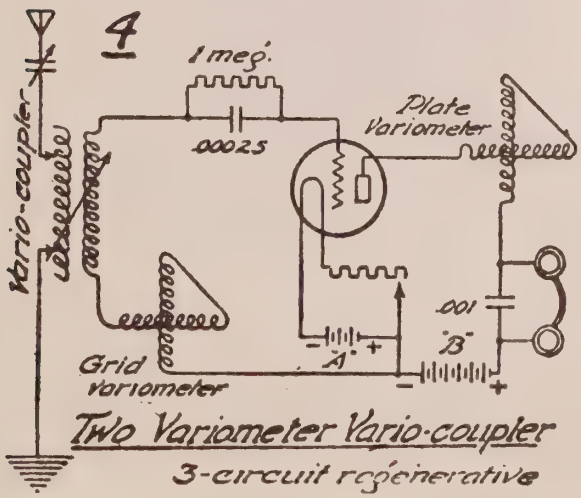
By using another tube, or several additional tubes, this amplification may be carried still further, for it is merely necessary to feed the output of one tube into the grid of the next tube. In this manner the incoming radio wave may be repeated and built up until the amplification may be as high as 50,000,000; i.e., the characteristics of the incoming wave may be faithfully reproduced by an exactly similar wave of enormously greater magnitude.





Coupling the Amplifiers

When more than one stage of amplification is used, there must be some apparatus interposed between successive electron tubes in order to obtain the maximum power output of the lower tube, and, if possible, at the same time obtain the maximum voltage changes on the grid of the upper tube. This can be done in one of two ways: first, resistance coupling; and second, transformer coupling. The first, while it obtains the maximum power output, does not increase the voltage—in fact it decreases it. The second, now universally applied, meets both the conditions of maximum power transfer and voltage increase. The construction of audio-frequency transformers presents no problems that have not been easily overcome—they are very similar to the greatest power transformers now in successful use. In the case of radio-frequency transformers, however, because of the extremely high frequencies the problem becomes much more difficult.



Feed-Back Regeneration

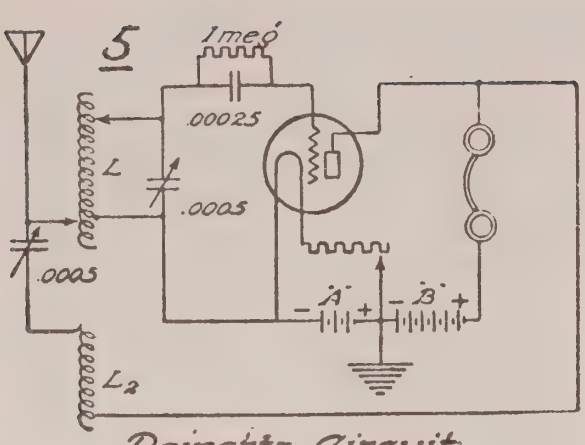
The first notable advance over the simple sets just described was the discovery that a small part of the amplified energy might be "fed back" to the grid circuit, and combining with the incoming signal further increase the plate output. This process, if left to continue, and if the power fed back is enough to counteract all losses in the circuit, will build itself up until the circuit "oscillates," with disastrous results to the clarity of the signal. The best amount of feed-back is just below this point of oscillation.

There are three methods of feeding back the plate circuit to the grid:—capacity coupling, conductive coupling, and inductive coupling—all returning part of the amplified energy to the grid circuit. Two typical examples are the "honey-comb" (and its familiar variation, the "spider-web") and the "two-variometer-vario-coupler" sets—Figs. 3 and 4. In the first the feed-back is by coupling the output circuit inductively, through the "tickler" coil, to the input circuit—either the "primary" or the "secondary" or both. In the second arrangement the feed-back is accomplished because of the fact that there exists a capacity within the electron tube itself between the three elements. The tube, in other words, is itself a condenser. Energy may be transferred across this condenser, provided the plate and grid circuits are in a mutually resonant condition, and this is accomplished by varying the inductance external to the tube—the two variometers—until resonance results.

Other standard circuits employing "feed-back" by inductive, conductive, or capacity coupling (or their combination) are the single-circuit Reinartz (Fig. 5); the double-circuit ultra-audion (Fig. 6); and the Cockaday four-circuit set—the fourth circuit being a so-called stabilizer coil.

The Limit of Regeneration

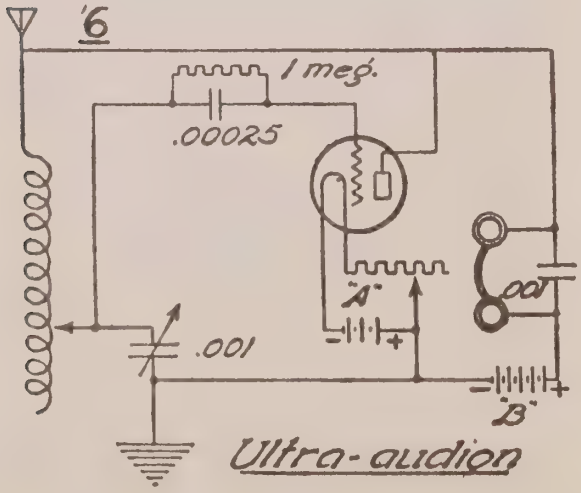
As remarked above, if the energy fed back to the grid circuit becomes



Reinartz Circuit

Inductive & capacity coupling

too great, sustained oscillations will start in the tube, and continue distorting the incoming wave. Thus with the ordinary sets there is a limit to the possible regeneration. This difficulty is overcome in the *super-regenerative* sets. These make use of the principle that by introducing into the circuit an alternating current generator, whose frequency is above audibility, the feed-back will periodically be raised and lowered about the oscillation point. By this means a tremendous feed-back is possible, although the set is somewhat "critical" and difficult to adjust. The alternating current is usually produced by an electron tube oscillator, which may be a separate tube as in Fig. 7, or the detector tube itself, as in Fig. 8. Two well-known samples of the super-regenerative circuits are those devised by Bishop and by Flewelling.



Ultra-audion

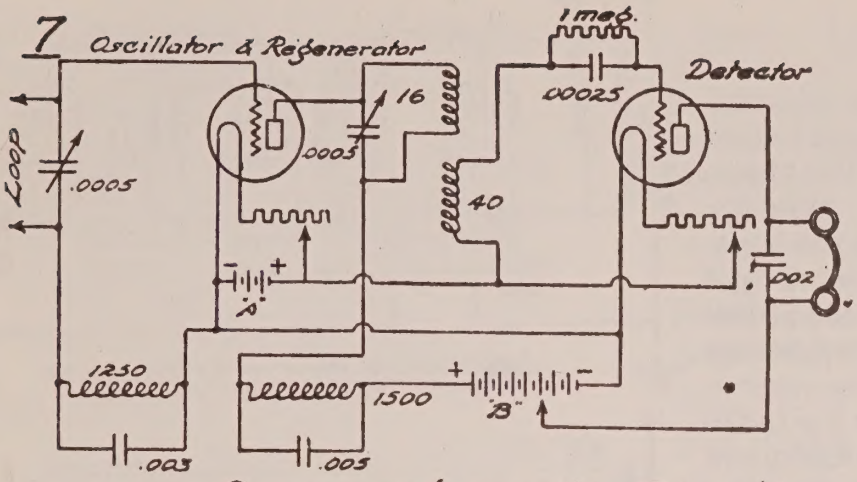
Mixing Wave Lengths

In the sets previously described the incoming signal is passed unaltered in frequency to the detector, although it may have been previously amplified. After rectification, the variations of the wave, being of sufficiently low frequency, will cause responses on the receiver diaphragms. The *heterodyne* principle is that of the formation of a "beat" note by the superimposition on the incoming wave of a second wave of slightly different frequency—either a little higher or lower than the incoming or fundamental wave. This beat note will pass through the detector and be made audible in the phones in the ordinary manner. There are two big advantages of this arrangement: first, the incoming wave is materially strengthened by the added wave; second, the selectivity is greatly increased —for not only is the regular resonant circuit employed, but the formation of the beat note itself is a highly selective process. The added alternating current wave may be produced by a separate electron tube oscillator, in which case the set is *heterodyne,* or the detector tube may be made to function as an oscillator also, in which case the set is *autodyne,* as in Fig. 9.

The beat note effect may, in fact, be present in almost any set which employs electron tubes notably the regenerative circuits. Rightly understood and utilized, it is of very great importance in all kinds of reception and is absolutely necessary for the best results in C.W. code work. However, the average amateur does not realize when his set is heterodyning, and fails to diagnose and allow for this condition, which is, to him, unwanted. Familiar manifestations of the presence of beat notes are distortion, and the whistles, squeals, and howls with which every operator of a regenerative set is acquainted.

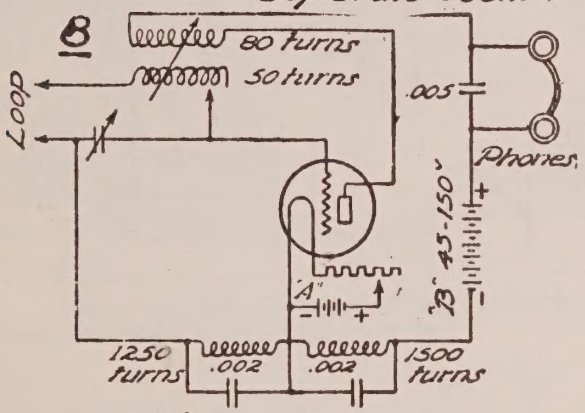
Super-Beat Notes

The *super-heterodyne* combines the advantages of the audio-frequency and radio-frequency amplifications. From



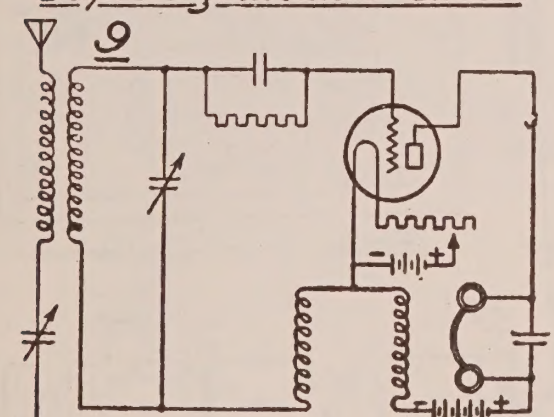
Super-regenerative Circuit

Separate Oscillator

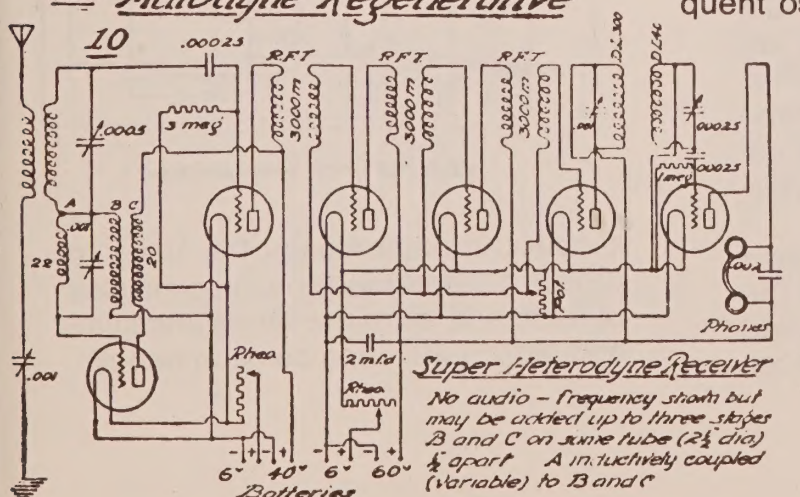


Single tube regenerative

Super-regenerative Circuit



Autodyne Regenerative



Super Heterodyne Receiver

No audio – frequency shown but may be added up to three stages B and C on same tube (2½ dia) ¼ apart A inductively coupled (Variable) to B and C

a structural and flexibility point of view, audio-frequency is the ideal, while from an electrical standpoint, radio-frequency is superior. Super-heterodyne combines both of these advantages, by converting the incoming high-frequency wave to a beat wave of intermediate frequency by means of superimposed oscillations. This frequency is sufficiently low to permit the use of audio-frequency type amplifying transformers with their attendant advantages, yet retain the advantage of amplification *before* detection. After the detector, the rectified wave may be still further amplified in the regular manner. This arrangement is theoretically one of the best methods for the reception of short wave lengths; it is shown in Fig. 10.

Choking Off the Oscillations

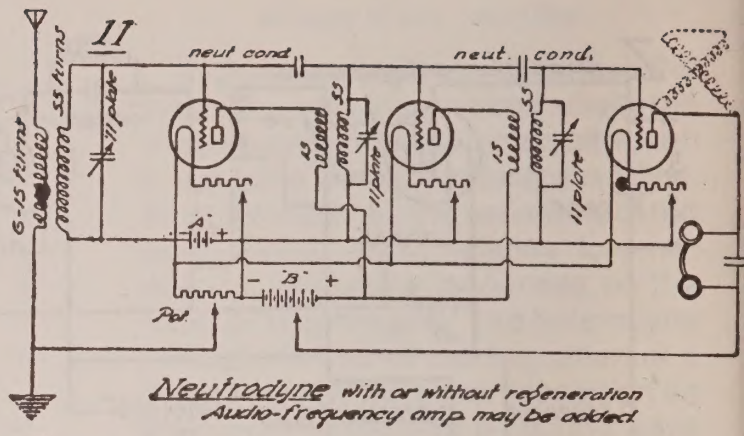
The *neutrodyne* is a set in which the feed-back tendency of the radio-frequency amplification—with consequent oscillation—is eliminated. This

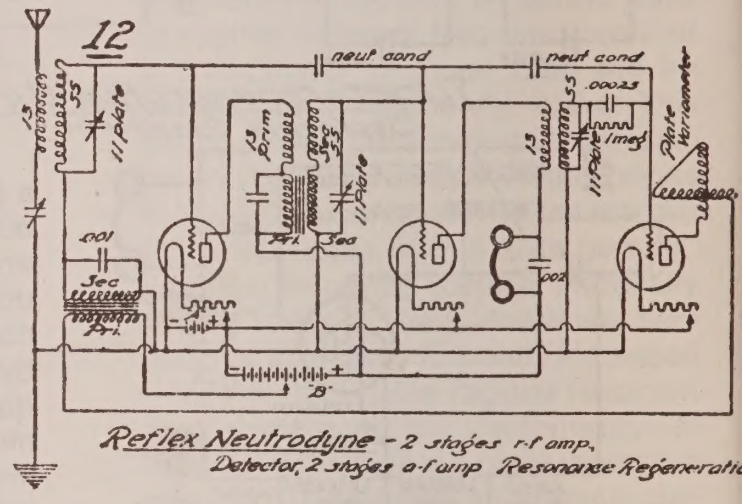
is done by specially designed small, fixed, neutralizing condensers placed between successive tubes. This makes possible higher ratios of radio-frequency amplification, and if the transformers are of the tuned-circuit type (by means of a variable condenser shunted across the secondary) the set is made very selective. The neutrodyne principle is applied to the radio-frequency alone; the subsequent amplification circuit after the detector, if any, may be straight non-regenerative amplification as in Fig. 11, or the same circuit may be made regenerative by adding the variometer as shown by the dotted lines; or, perhaps, the set may be "reflexed" as in Fig. 12.

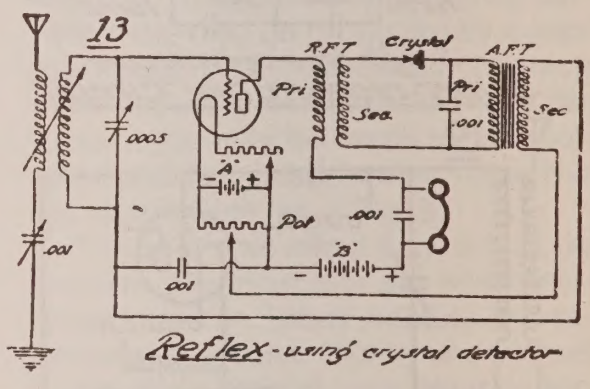
The Reflex Principle

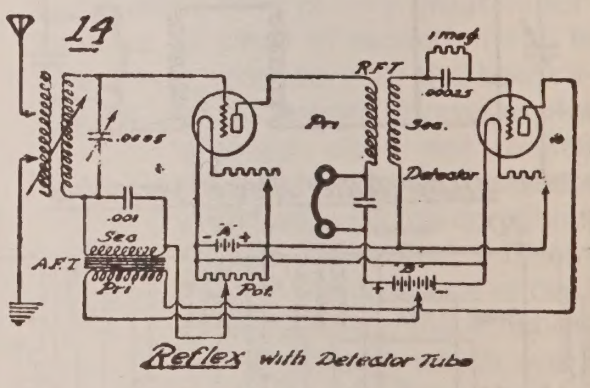
The reflex idea is one of many which aim to extract the maximum use of a tube or a group of tubes. Briefly, the incoming wave is passed through radio-frequency amplification, is then rectified by the detector, and then passed again through the same tubes as used for the radio-frequency amplification, but which now function as audio-frequency amplifiers. The current is guided through this tortuous path by inductances and condensers which, if proper values are used, are supposed to keep the current to the "straight and narrow" —see Fig. 13. A slight commercial variation of this circuit produces the so-called *inverse-duplex*. This is essentially a reflex set, the refinement being that the work is evenly distributed between the tubes (there must be more than one) so that none are overloaded as in the straight reflex. The detector may be an electron tube or it may be a crystal—which is becoming very popular. The tube arrangement is shown in Fig. 14.

Ready-made or manufactured radio sets often have small variations of the circuits described above, which add to the ease of operation or the excellence of the results, or both.









account. In such cases the thing to do is to get a textbook on the principles of radio and learn the terms and symbols, which will often come in handy.

RADIOFEST '86 EVENTS
FRIDAY, AUGUST 8

Registration 6 A.M. to 5 P.M. (Rm. 103)
Ralph Muchow's Historical Radio Museum Tour 10 to 5 P.M., transportation provided by the Fox River Valley Antique Car Club
"The Tesla Story" presented by John Topol 1:00-1:45 P.M.
Special Display, "Television, The Early Years - 10 A.M. to 6 P.M.
Contest Registration - 11:30 A.M. to 1:00 P.M.
Contest Judging - 1 P.M. to 2 P.M.
Contest Room Viewing - 2 P.M. to 7 P.M.
Auction Check-Ins & Preview - 5 P.M. to 9 P.M.
Reception - 7 P.M. to 9 P.M.
Flea Market - All Day
Special Cooking Demonstration - 2 P.M.

SATURDAY AUGUST 9

Registration 6 A.M. to Noon (Rm. 103)
Demonstration and Presentation by Peter Yanczer on Mechanical Television - 1 to 2 P.M.
Auction - 8 A.M. to Noon
Special Display - "Television – The Early Years" - 9 A.M. to 1 P.M.
Donation Auction (Parking Lot) - 3 P.M.
Cocktails - 5 to 6 P.M.
Banquet - 6 P.M.

SPECIAL COOKING DEMONSTRATION - 2 P.M. FRIDAY, AUGUST 8

Dawn Theis, a noted cooking authority, will give a special cooking demonstration. She has demonstrated her expertise at various bridal fairs and has managed many finer restaurants in the Fox River Valley.

Special Price - only $4.00 per person

Holiday Inn-Elgin
345 River Road, Elgin, IL 60120
ALL PETS MUST BE LEASHED.
Exit Route 31 South
on I-90 Northwest Tollway
30 minutes west of Chicago

RADIOFEST '86
Registration Information Form

To attend the Radiofest '86, follow these simple instructions:

1. Complete registration form below.
2. Enclose check or money order payable to ARCI.
3. Mail your registration before July 15, 1986 to:
   Joe Willis, P.O. Box 14732
   Chicago, IL 60614
4. If you need accommodations, please contact the Holiday Inn-Elgin at 312 695-5000 or 1-800-Holiday and mention that your're with Radiofest '86.

Make check payable to Antique Radio Club of Illinois

	Fee	No. Attend	Total
Registration (note $8.00 at gate)	$ 6.00		
Cooking Demonstration-Friday $4.00	$ 4.00		
Awards Banquet (incl. Tax & Gratuity)	$17.00		
Deadline for pre-registration- July 15, 1986		(total encl.)	

Name: _____

Street: _____

City/State/Zip: _____